For Healthier Lives

Massachusetts Department of Public Health

Communicable Disease Update

Newsletter of the Bureau of Communicable Disease Control

Volume 4 | Issue 3 | July 1996

Future directions: defining the essential components of tuberculosis control

Health care delivery is being redefined in the United States. How public health programs will fit into the new order of managed care, for-profit hospitals, and public health block grants is unclear. The clearest demonstration of the importance of public health programs is the resurgence of drug-resistant tuberculosis in the United States. Although HIV infection, homelessness, and other social problems contributed to the increased TB case rates, deterioration of effective tuberculosis control programs in New York City and many other areas of the country were equally important factors, especially in producing drug-resistant cases. Indeed, with effective public health TB control efforts re-established in New York City, TB case rates are now falling rapidly while AIDS and homelessness persist.

(Continued on page 7)

New chlamydia test

Starting July 1, 1996, all state-supported STD clinics began using a new testing method for the detection of *Chlamydia trachomatis*. The new method, the Ligase Chain Reaction (LCR), uses the LCX probe system supported by Abbott Laboratories. Specimens from female endocervical and male urethral swabs are the test samples. The exciting new feature of this DNA technology is that only one to five organisms are needed for positive identification. People with chlamydia who have too few organisms for detection by previous tests will now test positive. With amplified DNA probe technology, sensitivity of 96% has been reported (*i.e.*, 96% of those infected will test positive).

Chlamydia infection is asymptomatic in many who contract it, both male and female. With this new test, many of those individuals can now be diagnosed and treated. Another advantage of this technology is that labs will be able to test two to three times a week rather than once weekly batch-testing. This new test will allow expanded chlamydia testing for men in the STD clinics. We hope to initiate expanded testing in the fall.

Mad cow disease

"Mad cow disease" is the common name for bovine spongiform encephalopathy (BSE), a chronic degenerative disease affecting the central nervous system of cattle. Affected animals may display changes in temperament, such as nervousness and aggression, abnormal posture and lack of coordination. The incubation period is thought to be from two to eight years.

The disease was first seen in Great Britain in 1986. Since then, the British have implemented control measures to reduce the incidence of this serious disease in cattle and to prevent potentially infected materials from entering the food chain. British cattle are thought to have become infected by eating rendered cow and sheep byproducts in their feed in the early 1980s, when the rendering process was changed.

BSE belongs to a group of related diseases known as transmissible spongiform encephalopathies. The group includes scrapie and other diseases that affect animals; and kuru, Creutzfelt-Jacob disease (CJD) and others that affect humans. Speculation about a possible link between BSE and CJD has been based on the recent identification of a previously unrecognized pattern of CJD in ten British cases. This variant form of CJD occurred in people averaging 27.5 years old, compared to the average age of 63 among classical CJD cases. The variant form of the illness lasts 13 months, versus the classical CJD duration of about six months, and brain specimens are histologically distinct from classical CJD. Some studies have linked BSE to CJD, and researchers continue to study this potential association.

To prevent BSE from entering the U.S. and affecting livestock here, the importation of live ruminants and ruminant products from countries where BSE exists has been banned since 1989. A ban on using protein from rendered animal parts in livestock feed is currently under consideration. No cases of BSE have been seen in this country.

Inside

Epidemiology Update

Summer Safety Page

The buzz on bug-borne diseases



Some serious diseases are carried by insects and transmitted to people when the insects bite them. Eastern equine encephalitis (EEE), a rare disease, is carried by some mosquitos. Some ticks can transmit Lyme disease, Rocky Mountain spotted fever, babesiosis and human granulocytic ehrlichiosis. Many of these diseases start with a rash or flu-like symptoms. Mosquitos need water to breed, so they will be found in greater numbers near standing water like swamps or wading pools. Ticks usually live in areas with long grass or bushes, such as dunes, woods or back yards.

Reduce your exposure to ticks and mosquitos!

- Wear a long-sleeved shirt, long pants and closed shoes if you are in tick or mosquito habitat. Tuck your pants into your socks. Light-colored clothing will make dark brown ticks easier to see and remove before they can attach to your skin.
- Use insect repellents containing DEET or permethrin. Repellents with no more than 10–15% DEET should be used for children, and no more than 30–35% for adults. Repellents with permethrin can only be used on clothing, and should never be used on infants' clothing or directly on anyone's skin.
- Do frequent "tick checks" when in tick habitat or after coming indoors. Some ticks are tiny, so look for new dark brown "freckles."
- Remove an attached tick by gripping its mouthparts nearest your skin with tweezers and pulling straight out. Use steady pressure and make sure you remove the entire tick.
- Make sure all door and window screens on your house are well-maintained.

The rundown on reptiles

Many children like to find, catch, and play with or even bring home snakes and turtles during the summer. Unfortunately, these activities can put them at risk for salmonella infections. Reptiles such as lizards, snakes and turtles carry a wide variety of *Salmonella* serotypes, and fecal carriage rates can be as high as 84%–94%. In Massachusetts, we have seen a steady increase in reptile-associated salmonellosis (RAS), from 0.8% of all salmonellosis cases in 1991 to 5.2% in 1995.

As the popularity of both reptilian pets and interactive zoo displays of reptiles increases, RAS has become a growing concern among public health officials. In January 1996, 32 children and one adult became infected with *S. enteritidis* after visiting a komodo dragon exhibit at the Denver Zoo. Transmission is suspected to have occurred through touching the enclosure, not the lizards.

Salmonellosis can be a life-threatening disease in infants, young children, and immunocompromised and elderly persons. In October 1995, a 3-week-old Indiana infant died of an infection of *S. poona*. The same strain was isolated from the family's pet iguana.

Strict handwashing after handling a reptile or touching its environment should decrease the likelihood of disease transmission. The Epidemiology Program has written a health alert including this and other RAS prevention tips for reptile owners. The alert is distributed through local boards of health and health care providers. Copies may be obtained by calling the Epidemiology Program at (617) 983-6800 or your regional immunization office.

The pitfalls of picnics

Picnic time is here, and it's especially welcome after this year's interminable winter. As pleasant as the warm, sunny weather may seem as you relax at the local park or beach, disease-causing microorganisms may be flourishing in your food. *Salmonella* and *E. coli* O157:H7 are two of the more well-known bacteria capable of causing foodborne illness. Many others exist, most of which can multiply quickly at summertime temperatures.

Because the picnic environment is less controlled than your kitchen, keeping cold foods cold and hot foods hot can be a challenge. In addition, lowered levels of sanitation outside the home can facilitate the contamination of foods and beverages. Following the simple guidelines below will help reduce your chances of contracting a foodborne illness.

- **Clean hands thoroughly** with soap and water or disposable hand wipes before and after preparing food *and* after using the bathroom.
- Do not prepare food for others if you are ill.
- Prepare foods close to serving time.
- Store perishable foods in a cooler with ice or cold packs, ideally at 40°F or below. Keep coolers out of direct sunlight.
- Cook meats thoroughly, ideally to an internal temperature of 160°F or above. Keep hot foods hot (140°F or above).
- Sanitize all dishes and utensils used for preparing raw foods prior to using them for other foods. Discard used marinades and sauces.

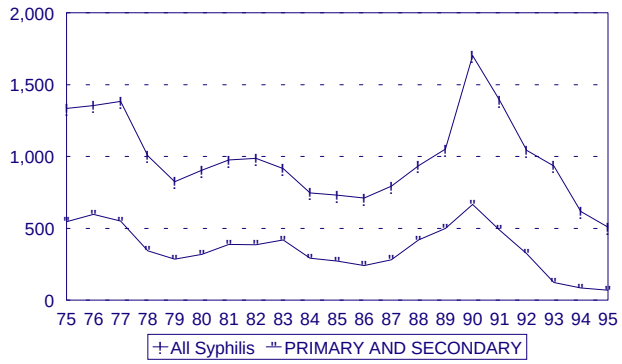
These guidelines were provided in part by the USDA, which offers a meat and poultry hotline at 1-800-535-4555. For current recorded advisories on unsafe shellfish harvesting areas, call (508) 465-5947.

STD Update

Is syphilis eradication a possibility?

In the 1995 Annual STD Report, the STD Prevention Division noted dramatic decreases in reported syphilis over the past five years in Massachusetts. These decreases follow an increase in the late eighties that was associated with increased crack and other cocaine abuse. Statewide trends for the past five years show significant decreases in incidence at all stages of syphilis. The 508 syphilis cases of all stages reported in 1995 are the lowest annual total since syphilis reporting began in 1918. The chart below displays 20 years of reported syphilis.

Massachusetts Reported Syphilis
All Syphilis vs Primary and Secondary



Overall rates of syphilis declined 71% from 28 cases per 100,000 population in 1990 to 8 cases per 100,000 population in 1995. Of greater significance is the decline of lesion (infectious) syphilis (primary and secondary), which declined 90% from 11.6 cases per 100,000 population in 1990 to 1.1 cases per 100,000 population in 1995, falling 78% below the *Healthy People 2000* objective of 5 cases per 100,000.

One might conclude that sufficient progress has been made in reducing reported syphilis in Massachusetts to begin reallocating resources to other programmatic needs in STD prevention. Infertility prevention, for example, would benefit by more intensive chlamydia and gonorrhea disease interventions. However, one of the problems with resource shifting is that it may contribute to resurgence of the disease that is currently under control.

The historic low incidence of infectious syphilis in Massachusetts provides a real opportunity to move from syphilis prevention to syphilis eradication. The Division of STD Prevention is now considering an intensive, multiple-focus syphilis eradication program.

STD/HIV Prevention Training Center of New England

The Prevention Training Center offers clinical and laboratory courses for health care providers involved in the clinical management of STDs. The clinical courses are designed to provide hands-on training in the diagnosis, management and treatment of STDs and associated syndromes. The three-day STD Intensive Clinical Course (24 hours on-site) is designed to provide an update of basic STD knowledge and patient management in ambulatory care settings. This training includes a clinic-based practicum, discussion of case studies, specimen collection, and a laboratory workshop on wet mounts and gram stains. The five-day clinical course is designed to provide more in-depth theoretical knowledge including the management of complications. The training includes two days of presentations followed by a clinical practicum including case studies and a laboratory session. Laboratory courses have also been designed for technicians and clinicians performing stat testing for diagnosis of sexually transmitted diseases.

Courses are available on the dates below.

- Three-Day STD Intensives: Oct. 21–3; Nov. 18–20
- Five-Day STD Intensive: Sept.11, 25, Oct. 7–9
- Laboratory: Wet mounts and stained smears, Sept. 19
  Syphilis serology and darkfield microscopy, Nov. 6

For further information on programs and registration, please call Renee Aird at (617) 983-6953 or Wendy Hylton at (617) 983-6945.

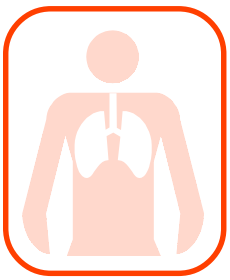
Feedback requested on STD materials

We would like to receive feedback from interested parties on the following printed materials currently being developed.

- A **brochure for teens** is being developed as part of the "What's Your Story?" project, in which we asked teens to tell personal stories about taking care of their health and preventing diseases. The brochure will publish quotes from these stories. If you work with teens who would like to review the brochure, please call Christie Burke at (617) 983-6959 to make arrangements.
- The **morbidity card** used for reporting STDs to the Division is being revised to make it more user friendly. If you have any thoughts on how the form could be improved, please call Ed Corkren at (617) 983-6949.

Regional Update: TB

Southeast Region - TSA V (617) 727-1440 or (508) 947-1231 **TSA Nurse:** Anne Empey, RN **TSA Clerk:** Anne Bernard



Epidemiology

There were 44 cases of active TB diagnosed in TSA V in 1995. The cities of New Bedford, Quincy, and Attleboro had the highest case counts.

Clinical Services

Martha's Vineyard now has a satellite clinic located at the Visiting Nurse Services. The patients are under the medical supervision of Chet Mohr, MD, at the Cape Cod Clinic. A change in TSA boundaries this year has resulted in the Massachusetts Respiratory Clinic in Braintree now being included in this TSA.

Educational Activities

Twenty-five educational inservices were provided this past year for long-term care facilities, community nursing agencies, and hospitals. The staff also participated in a health fair, organized by nursing students from UMass / Dartmouth, at an extended care and assisted living facility on the Cape. A program entitled "Regional TB Update 1996" for community health departments and providers was conducted by the Division in May at the Paul Dever School in Taunton.

Community Outreach Activities

Xue Zhi Sun is a part-time outreach worker (ORW) for the Chinese community in Quincy; Leandro Fortes is a part-time Cape Verdean ORW who serves the Brockton area. Both provide directly observed therapy, supervision of medications in the field, and incentives and enablers (such as money for food or transportation) to assist patients in successfully completing their TB treatment.

Communicable Disease Update is a quarterly publication of the Bureau of Communicable Disease Control, Massachusetts Department of Public Health.
David H. Mulligan, Commissioner

For a free subscription, please call Debra Thimas at (617) 983-6800.

Bureau of Communicable Disease Control
(617) 983-6550
Alfred DeMaria, Jr., MD, Assistant Commissioner

AIDS Surveillance Program
(617) 983-6560
Lisa Gurland, RN, PsyD, Director

Division of Epidemiology and Immunization
(617) 983-6800
Susan M. Lett, MD, MPH, Immunization Program Director
Bela T. Matyas, MD, MPH, Epidemiology Program Director

Refugee and Immigrant Health Program
(617) 983-6590
Jennifer Cochran, MPH, Director

Division of Sexually Transmitted Disease Prevention
(617) 983-6940
Paul Etkind, MPH, PhD, Director

Division of Tuberculosis Prevention and Control
(617) 983-6970
Sue Etkind, RN, MS, Director

Editor Emerita
Jocelyn Isadore, MPH
Contributing Editors
Christine Burke
Kathleen S. Hursen, RN, MS
Lewis Thompson

Managing Editors
Allison Hackbarth, MPH
Caryl A Haddock
Ann C. Miller, MPH

Task force reorganized

Is now Massachusetts Immunization Action Partnership

In an effort to enhance and coordinate immunization activities, the Massachusetts Immunization Task Force has reorganized under a new name: the **Massachusetts Immunization Action Partnership** (MIAP). The MIAP has set up three subcommittees (Policy and Practices, Immunization Information Systems, and Outreach and Recruitment) to achieve the goals of the partnership's new mission statement: to increase immunization levels and eliminate vaccine-preventable diseases by promoting, coordinating and enhancing public and private strategies, actions and resources for immunizing the Massachusetts community, especially children.

Individuals or groups involved in immunization activities are enthusiastically invited to join the MIAP. For more information, please contact Jean Franzini at (617) 983-6850.

Save the dates!

September 19:
Immunization Update 2, CDC satellite training course. Call Jean Franzini at (617) 983-6850 for information.

December 4:
Annual STD Update Synopsis; location to be announced.

Regional Update: Immunization

The immunization epidemiologists in each of the regional offices and at the State Laboratory Institute provide these services:

Education and Consultation
- Offer educational programs for general and professional audiences
- Participate in special activities such as regional coalitions

Adult Immunizations
- Promote adult immunizations, including influenza and pneumococcal vaccines
- Provide guidance during institutional outbreaks of vaccine-preventable diseases

Immunization Surveys
- Conduct validation audits of immunization records in schools and day care programs
- Provide consultation on immunization requirements and accurate record-keeping

Adverse Events
- Monitor post-immunization adverse events clinics run by boards of health and VNAs
- Advise other providers about adverse events and VAERS reporting requirements

Outbreak Control
- Work with health care providers to control transmission of vaccine-preventable diseases in clinics, hospitals, schools and other institutional settings
- Coordinate with local boards of health to control disease transmission in the community
- Offer guidance on emergency immunization clinics
- Assist providers in follow-up of infants at high risk for hepatitis B

Surveillance and Analysis
- Develop and maintain surveillance systems with local boards of health, hospitals, nursing homes, schools, and sentinel sites.
- Analyze morbidity data to identify trends

Vaccine Distribution and Management
- Assist with provider enrollment in the Vaccines for Children (VFC) Program
- Provide technical advice on the proper storage and handling of vaccines and record-keeping requirements

You be the epi!

A 28-year-old male presents with fever, weight loss, and night sweats. The patient denies alcohol or drug abuse, but the physician suspects IV drug use. He also has a history of incarceration in New York. The patient may be immune-compromised and was on suicide precautions in the hospital, which he attempted to leave against medical advice. Biopsy and cultures confirm drug-sensitive lymphatic (mediastinal) TB. The patient is started on four antituberculosis medications: isoniazid (INH), rifampin (RIF), pyrazinamide (PZA), and ethambutol (EMB). How would you manage this case?

Analysis

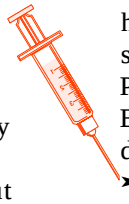
The patient was placed on directly observed therapy (DOT) seven times a week due to a strong potential for nonadherence. Outreach services were not requested. Later, the nurse case manager decided to provide DOT only twice a week with the patient self-administering the remaining doses because he appeared to be adherent. After eight months of treatment with three medications (PZA was stopped at three months), EMB was discontinued. The patient subsequently developed pulmonary symptoms and positive cultures (sputum and a cervical lymph node biopsy) for *Mycobacterium tuberculosis*, indicating treatment failure and possible nonadherence.

A case conference was held during which rifampin resistance was noted. The patient agreed to a voluntary admission to the TB Treatment Unit, but signed out against medical advice after several days. The patient was started on three new drugs (EMB, ofloxacin, and streptomycin injections) and was placed on DOT seven days a week. Contact investigation revealed two out of five close contacts developed positive PPD skin tests. Chest radiographs were negative and the contacts were placed on INH preventive therapy for six months.

Providing DOT for all doses needed by a person with risk factors for nonadherence can prevent drug resistance and the infection of contacts, and assure treatment completion within six months. Outreach services are often available to assist health departments with DOT. When the culture remains positive after several months of treatment, the patient must be reevaluated and started on at least two new drugs.

Immunization Update

Kudos to school nurses



Over 250 communities across the state have requested information about the adolescent hepatitis B project. The response to this voluntary program is heartening. Many schools, under the leadership of school nurses, have started immunizing students and educating parents, students, faculty and administration about hepatitis B prevention.

"Taking advantage of this opportunity is no easy task, but this is good work!" one school nurse commented. School nurses have been the motivating force in many of the 180 communities that participated in the program this past school year. More schools are planning to implement the program next year. The motivation and effort on the part of many school nurses are commendable. Their enthusiasm has been infectious. Schools with minimal or no health facilities, but a high degree of motivation, have been able to implement the program through collaboration with visiting nurse associations, community medical facilities and local boards of health.

The adolescent hepatitis B project in Massachusetts began in November 1995. Its goal is to prevent hepatitis B by immunizing sixth graders. The Massachusetts Immunization Program provides hepatitis B vaccine to health care providers, boards of health and schools. Immunization of adolescents is expected to result in a more rapid decline in the incidence of hepatitis B infection. The strategy in choosing this age group is to protect adolescents before they are exposed to the virus through high-risk behavior.

Coming soon: varicella vaccine

The CDC recently negotiated a contract for the purchase of varicella vaccine, which the Massachusetts Immunization Program (MIP) expects to provide in the near future. However, varicella vaccine will **not** be available through local distributors; providers will place orders with the MIP by mail or fax, and the manufacturer will ship directly.

If you are interested in ordering varicella vaccine through the MIP you must complete and return the varicella response card labeled **"Yes, I want varicella vaccine!"** as soon as possible. If you have lost or did not receive this response card, please call your regional MIP office immediately. Only respondents who have documented adequate storage capacity will be sent a Varicella Order Form and Usage Report along with instructions on how to order free varicella vaccine through the MIP.

Pending final Advisory Committee on Immunization Practices (ACIP) recommendations, the MIP will make the vaccine available to all healthy children 12–18 months old, susceptible children 11 or 12 years old (only one age group will be chosen), and household contacts of people with compromised immune systems.

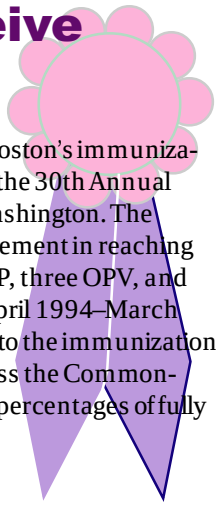
Hepatitis B needle tips

One challenge in administering hepatitis B vaccine is having two different formulations requiring different doses in similar populations. The Massachusetts Immunization Program (MIP) supplies both Recombivax HB and Energix-B unter the current federal contract. Therefore, before you draw up a dose or inject a patient, check these points.

- **Always check the package insert.**
- **Always** administer the dose recommended by the manufacturer for your patient's age. Different formulations contain different concentrations of vaccine.
- **Never** rely on the cap or label color to determine the dose.
- **Never** base the dose on volume alone. Different amounts are needed for different formulations.

Using the correct needle length is also important to ensure that the vaccine is injected into the patient's muscle. Use a $^{5}/_{8}$–1″ needle for infants and toddlers, and a 1–1$^{1}/_{2}$″ needle for adolescents and adults.

State & city receive awards



Both Massachusetts and the City of Boston's immunization programs were presented plaques at the 30th Annual National Immunization Conference in Washington. The plaques recognized "extraordinary achievement in reaching 85% immunization coverage for four DTP, three OPV, and one MMR among 2-year-old children, April 1994–March 1995." While the awards were presented to the immunization programs, it is health care providers across the Commonwealth who are responsible for our high percentages of fully immunized children.

Get ready for school

Beginning in September 1996, three doses of hepatitis B vaccine are required for entry into kindergarten for children born on or since January 1, 1992. Although hepatitis B immunization is not required for children born before 1992 who will be entering kindergarten this fall, the Massachusetts Immunization Program also provides the vaccine for children in this age group.

And remember, two doses of measles-containing vaccine and one dose each of mumps and rubella vaccine are required for anyone entering kindergarten, seventh grade, or college. The combined MMR formulation is recommended for both doses of measles vaccine.

Future directions of tuberculosis control *(Continued from page 1)*

Whenever public health problems improve, it is tempting to cut program funding. Programs get merged in the name of efficiency, or case management is relinquished to private sector medicine. Tuberculosis in Massachusetts has declined for four straight years. Case rates are now the lowest ever recorded. Yet, among high risk groups (recent arrivals from high-prevalence countries, homeless people, HIV-infected individuals, and health care workers) tuberculosis is far from a disease of the past. Moreover, inadequacies in TB control programs continue to foster the development of drug-resistant disease and transmission to others. (Turn to "You be the epi!" on page 5 for an example.)

Because the future of tuberculosis control programs is unclear, it is critical to identify essential components. Regardless of changes in the health care system, effective tuberculosis control will be maintained only if planners understand that the six essential components described below are essential.

Essential components of TB control

1. **Provider responsibility:** In most personal medical care, providers are not responsible for patient adherence to treatment. But when a patient fails tuberculosis therapy, potentially developing a drug-resistant strain, the failure is as much the treatment provider's responsibility as it is the patient's. Providers accustomed to other forms of health care delivery must accept responsibility for ensuring that their patients adhere to the lengthy treatment.
2. **Close monitoring of therapy until cure:** Monthly or more frequent visits are essential. Community outreach and twice-weekly directly observed therapy (DOT) are active forms of monitoring that further support adherence to treatment. Private sector health care systems may have limited outreach capability for monitoring and DOT. These providers must be willing to accommodate monthly visits—without fees that would discourage compliance.
3. **Removal of barriers to treatment.** Tuberculosis treatment until cured is in the interest of the public as well as the individual. Financial, transportation, language, cultural, and educational barriers must be removed. Appointments must accommodate the patients' working schedules and other personal needs, including safety and transportation.
4. **Tools to enhance adherence.** A number of effective tools have been developed to support adherence to treatment. Contracts between patient and provider, pill counts, daily pill boxes, urine tests for isoniazid, fixed-dose combination pills, and patient performance incentives have all been used with success in various TB control settings.
5. **Contact tracing and preventive treatment**. For each new active TB case, close contacts must be identified, tested, and if infected, evaluated for active TB and preventive therapy. This usually requires community outreach. Barriers to preventive therapy must be minimized for asymptomatic patients, who may not see treatment as a high priority.
6. **Program assessment and response**. Program performance has now become an essential part of most health care delivery systems. The difference is that effectiveness must be assessed from a public health perspective, rather than from a financial or client satisfaction perspective. Many aspects of TB control may not be cost-efficient and are likely to become more inefficient as case rates fall.

Book review: *At War Within: The Double-Edged Sword of Immunity*—

William R. Clark

"The immune system can provide a powerful defense against potential pathogens, but perhaps less obvious is its capability of bringing too much power to bear during the course of clearing away foreign invaders." This excerpt from the introduction of *At War Within: The Double Edged Sword of Immunity* by immunologist William Clark is a powerful statement on the dual nature of the immune system. This comprehensive book initially reviews the history of smallpox vaccination, including early Chinese procedures of inhaling dried powdered scabs and the later Turkish procedure of rubbing them into scratches on the skin, referred to as inoculation. The physiology of the immune system is comprehensively reviewed. Autoimmune disorders (those in which the immune system turns on itself) such as lupus, myasthenia gravis, and autoimmune hepatitis are presented, along with hypersensitivity and allergic reactions. The author also discusses severe combined immunodeficiency disease (SCID), in which the immune system fails at birth or shortly thereafter. A subsequent chapter devoted to the immunology of AIDS includes a discussion of vaccine and drug treatments. Dr. Clark explores organ transplantation with its immunological and ethical dilemmas and concludes the book with a provocative chapter on the link between the brain and the immune system.

COMMUNICABLE DISEASE UPDATE
STATE LABORATORY INSTITUTE
305 SOUTH ST.
BOSTON, MA 02130

What do you think of *Communicable Disease Update?*

We'd like to hear from you.

Please fill out this card and mail it back to us. Thanks!

1. What section(s) of the newsletter do you usually read? (✓ all that apply)

❑ Front page	❑ STD Update	❑ Regional Updates
❑ Epidemiology Update	❑ TB Update	❑ Save the dates
❑ Immunization Update	❑ You be the epi	❑ Book reviews

2. In general, how do you rate the information in each section?
(**1**=very informative or useful, **2**=moderately, **3**=a little, **4**=not at all informative or useful)

___ Front page	___ STD Update	___ Regional Updates
___ Epidemiology Update	___ TB Update	___ Save the dates
___ Immunization Update	___ You be the epi	___ Book reviews

3. What changes would you like to see in the newsletter? Any other comments?